

**DEVELOPMENT OF A HANDOUT TO ASSIST HOMEOWNERS IN MINIMIZING  
PROPERTY LOSSES PRIOR TO EXPERIENCING A WILDLAND/ URBAN INTERFACE  
FIRE**

**EXECUTIVE DEVELOPMENT**

BY: Michael A. Curry  
North Ada County Fire & Rescue District  
Garden City, ID

An applied research project submitted to the National Fire Academy as part of the Executive Fire  
Officer Program  
July 1998

## **ABSTRACT**

This research paper studied the influences of building construction and external landscaping's contribution to property losses during a wildland fire. The problem was that our Fire District had no information to provide to homeowners regarding protecting their property, and our Fire District was experiencing considerable growth in our wildfire interzone areas. The purpose of this applied research paper was to develop a simple handout (Homeowners Guide) that would provide homeowners of our wildland interface/interzone areas with information that could assist them in protecting their property against the threat of a wildland fire.

This research employed both historical and action research methods: (a) to determine what external physical features of a residential building were the most hazardous and would contribute to its loss during a wildland fire, (b) to determine what types of vegetation were the most hazardous and would contribute to structural losses during a wildland fire, (c) what local or regional ordinances were on the books that govern building construction in the foothills area, and, (d) what recommendations could be made on pamphlet form that would assist homeowners in protecting their home during a wildland fire.

The primary procedure used for this research paper was a review of case studies and recommendations of experts found in trade journals and government brochures. Local fire department data was considered, as was information gained in a personal interview with the District Fire Chief.

Results of the study revealed consistent recommendations regarding building construction materials and defensible space, both of which would significantly contribute to a home surviving a wildland fire. It was also learned that a county ordinance had been recently passed that mandated

building requirements to parallel the recommendations made in the Homeowners Guide. As a direct result of this study, a Homeowners Guide was developed to be distributed directly to homeowners in our wildland interzone area, with the recommendations being: (a) distribution to be made annually during the month of June, (b) distribution to be made by firefighters on a door to door basis, and (c) new homeowners having built under the County Wildland Ordinance be included to insure construction met defensible space requirements.

## TABLE OF CONTENTS

	<b>Page</b>
Abstract .....	i
Table of Contents .....	iii
Introduction .....	1
Background and Significance.....	2
Literature Review.....	4
Procedures.....	8
Results.....	10
Discussion.....	16
Recommendations.....	17
Reference List.....	19
Appendix A (Recommendations to improve defensible space).....	A
Appendix B (Fire resistive landscaping).....	B
Appendix C (Homeowners Guide).....	C
Appendix D (Example of when recommended construction and landscaping is used).....	D

## INTRODUCTION

North Ada County Fire & Rescue District (NACFR) is a fire district located adjacent to the west side of the city of Boise, Idaho. NACFR protects the incorporated city of Garden City as well as approximately 18,000 acres of unincorporated land in the foothills north of Garden City. Over the years, a few residences have been built in the Dry Creek area of these foothills, and recently the area has begun to develop more rapidly. A major development has been approved and will eventually contain over one thousand rural type homes. Because of the sagebrush and cheat grass land coverings, the area is susceptible to fast moving wildland fires. NACFR has fought many such fires in the foothills area, and has come close to losing homes due to interface problems commonly associated with rural settings. A problem facing NACFR currently is the increased residential development in the foothills area, and the absence of written guidelines from our Department to provide homeowners with information to offset the threat of a wildland fire.

The purpose of this research paper was to develop a simple handout to provide homeowners with information that would assist them in protecting their homes and property against the threat of a wildland fire. Historical and action research methods were used to answer the following questions:

1. What external physical features of a residential building are the most hazardous and would contribute to its loss during a wildland fire?
2. What types of plants or shrubbery are the most hazardous and would contribute to the spread of fire during a wildland conflagration?

3. What local or regional ordinances are on the books that govern building construction in the foothill areas?
4. What recommendations can be made in pamphlet form, that would assist homeowners in protecting their residences during a wildland fire?

## **BACKGROUND AND SIGNIFICANCE**

The Foothills area protected by NACFR is characterized by rolling hills that become steeper to the north, with an agricultural valley lying in the southern area. This is the Dry Creek valley and contains the majority of the residences that we protect. A few small farms have existed in the valley since the forties, with “gentlemen farmers” springing up occasionally in the last few decades. In addition, several residences have been built on the hillsides, surrounded by natural vegetation. The current population is considered sparse, however that is about to change with a new development recently approved by the Ada County Planning and Zoning Board. This development will build out from the valley floor and up the hillsides.

The Dry Creek valley is eight to ten miles away from the urban centers of the greater Boise area. While only ten to twelve minutes away, the atmosphere is rural and one gets the feeling that city life is quite far. Because of this close proximity to city amenities but with a country feeling, we believe the valley will develop rapidly now that a major development has arrived.

The climate is typical to Southern Idaho, and at an elevation of approximately 3,000 feet, it experiences four seasons. Winter temperatures average 30 degrees, with lows sometimes in the minus territory. Summers are hot with 100 degree days common. Humidity is normally low and during the

months of July and August, little or no precipitation is the norm. The climate is similar to a high desert region.

Vegetation in the area is comprised mostly of sagebrush and cheat grass. The valley floor has areas of cultivated fields, however sagebrush and cheat grass typically surround the homes and outbuildings. Trees are sparse, with an occasional cottonwood or pine tree dotting the area. Depending on the winter rainfall, dry grass can reach heights of eight to fourteen inches during the summer fire season. It is this dry grass and sagebrush that burn most fiercely during the wildland fire season.

Many wildland fires have burned in the foothills area in the past. Most fires have been lightning caused, however manmade causes have risen due to the increase in population during recent years. Looking at just the past ten years (1988 to 1998), our run report statistics tell us that we have had 52 fires of a one hour duration or longer in the foothills, with an excess of 22,000 acres lost due to those fires (North Ada County Fire & Rescue, 1998). Despite those statistics, no actual structural losses have occurred in our Fire District due directly to a wildland fire. In an interview with the NACFR Fire Chief, Larry Perry, it was learned that our Fire District has lost three homes in the foothills area during his tenure with the Department, however these losses were due to causes not related to wildland fires. The Chief further stated that we have been fortunate, as several times in the past, structural losses were avoided due to aggressive firefighting efforts or just fortunate circumstances. It is his contention that future residential losses due to wildfires may be unavoidable unless public concerns rise and more is done on the prevention side through defensible planning. He believes public apathy and a lack of public education are currently a major hurdle facing NACFR today. (L. D. Perry, personal interview, May 22, 1998).

In the past, our Department has concentrated its efforts in combating wildland fires in the suppression areas. Our equipment purchases, personnel protective clothing and training efforts have been geared toward fire suppression. It seems logical that if we can prevent a structure from catching fire, less effort would be spent fighting it, with the goal being reduction in life and property losses. Any aid our Department can give homeowners that will (1) heighten their awareness of the wildfire problem and (2) give them information to reduce the wildfire threat, will have a significant impact toward reaching our organizational goals of saving life and property. The development of this handout is an effort to be proactive in the wildland fire prevention area and is a major step toward “quality customer service” as defined in the manual for the Executive Development course at the National Fire Academy. In addition, the handout is an example of “marketing in the public sector” also described in the Executive Development course.

## **LITERATURE REVIEW**

### **Impact of Wildland Fires in the Urban Interface Area**

It seems that every summer we read or hear about large wildland fires that have resulted in significant property loss. These wildland/urban interface fires can occur anywhere in the United States where residential homes have been built next to wildland areas. Our area of the country, the West Coast, has had its share of devastating wildland fires. In October 1991, Spokane, Washington, experienced a wind driven, 30,000 acre fire that destroyed 84 homes, 40 other structures and claimed one life [Birr, 1992]. Even closer to home, in Bend, Oregon, 21 homes were lost in August of 1990 with total property loss exceeding \$9 million coupled with suppression costs estimated at over \$2 million



[Birr, 1990]. In June, 1990, the Santa Barbara, California “Paint Fire” cut a destructive 4500 acre path that took 600 homes and one life [Cullom, 1990].

The losses attributable to these fires and others like them pale when compared to the Oakland Hills fire of October 20, 1991 (Queen, 1991; Michaels, 1991). On that fateful day, conditions were prime for disaster. Five years of drought had left the Oakland Hills parched and the thousands of homes that had been built into the steep, thickly vegetated hillsides were only waiting for windy conditions to set the stage. The wind did come, and with 30 to 40 MPH gusts, the resulting fire was unmanageable. The result was the largest dollar loss fire in United States history. A total of 3,390 residences had been destroyed, 3,000 vehicles lost and most tragic, 25 people had lost their lives. The dollar loss from this fire exceeded \$2 billion, with an additional \$10 million in suppression costs. While the conditions were terrible prior to this conflagration, it can be noted that Oakland and Berkeley were two of the few fire jurisdictions in California that allowed homes to be built with shake roofs in wildland interface areas. These national examples point out the seriousness of the wildland fire problems in interface areas.

### **Impact of Public Education on the Wildland/Interface Problems**

There is a growing trend regionally and perhaps nationally for homeowners to escape the pressures of city life by living in a more rural setting. As in most interfaces, the homeowner still desires urban amenities, but with rural seclusion (Wrightson, 1994). Most of these homes are built with aesthetic values and economic considerations in mind, usually ignoring fire protection or the threat of wildfire (The Sierra Front Wildfire Cooperators, 1992). As more and more people move from urban areas to the rural settings, the question of large scale disasters becomes more of a question of when, rather than if.

The people who live around natural environments can be categorized into three groups:

1. Those who don't know they live in a high risk area;
2. Those who recognize the high risk, but believe the risk is unavoidable;
3. Those who understand the risk and how to protect themselves and have taken steps to reduce the exposure to their property.

These people can and do have a significant positive impact on the outcome of a wildfire situation before, during and after an incident (International Association of Fire Chiefs [IAFC], 1991). It is the first two groups that should be the target of our public education emphasis. If we can educate these groups so that they fall into the third group, we have accomplished much toward reducing the threat of property loss due to wildfire conflagration.

### **Impact of Construction and Landscaping Features on Homes During a Wildland Fire**

It is widely acknowledged that the construction feature most likely to contribute to the loss of a residence during a wildfire is the infamous wood shingle roof. The wood shingle roof is normally the first part of the home to catch fire and in many cases, can catch fire well in advance of the fire front due to flying fire brands. Composite roof fires burn smoky and slow, while the wood shake roof fires are fast and hot (Hoffman, 1991). In many areas of the country, legislative efforts to ban wood shingle roofs in the interface areas by fire prevention officers have been strongly countered by the wood shingle roofing industry. Sprinkling the roof usually provides a minimum amount of protection, as high winds, low water pressure and the loss of power all contribute to their ineffectiveness. Fire resistive wood shingles are available from some manufacturers, however, they may provide the homeowner with a false sense of security, as they can burn during many wildland fire conditions (NFPA, n.d.). In addition, the following construction features are potential trouble during a wildland fire;

1. Wood decks facing slopes
2. Large glass windows facing slopes
3. Unscreened louvers or vents
4. Chimney with no spark arrestor

Roof eaves that extend beyond the exterior walls are susceptible to flame and should be limited in length, boxed or enclosed with fire resistant materials. Unenclosed under-floor areas should be screened (The Sierra Front Wildfire Cooperators, 1992).

While home construction is an important factor during wildland fires, the type and amount of vegetation surrounding the home adds to fuel loading. Fuel loading is a very important factor during a wildland/interface fire, yet seems to be the most overlooked consideration (Queen, 1992). Several of the literature sources that were reviewed, recommended homeowners create a defensible space around their structures that consist of clearing out all combustible vegetation to 30 feet on flat terrain and up to 150 feet on sloped terrain to 30% (Colorado State Forest Service, n.d.; Cowardin 1992; The Sierra Front Wildfire Cooperators, 1992; National Fire Protection Association [NFPA] 1991). In addition to clearing out vegetation, tree thinning and or pruning is recommended to reduce fuel loads. A summarization of common wildland fuels and recommendations to improve defensible space is provided as Appendix A (Colorado State Forest Service, n.d.). Where ecologically possible, fire resistant vegetation should be used for landscaping purposes. The private sector has provided a list of fire resistant plants and shrubs (Appendix B) that may be aesthetically pleasing to the homeowner and add to the defensible space of the residence (Far West Landscaping, Boise, ID, 1998).

An important consideration, in addition to construction and vegetation features, is man made fuel loads commonly found around homes in the interface. The stacking of firewood, rubbish or other

combustible material near the residence contributes to the fuel loading, as does wood constructed outbuildings or barns (IAFC, 1991; Colorado State Forest Service, n.d.). Certainly, swimming pools, natural ponds, creeks or lakes are a good thing!

In summary, the literature review clearly illustrates the severity of the wildland interface problem nationally and illustrates that the foothill area of NACFR's response area shares the general characteristics typically found in wildland interface areas. The almost universal consensus regarding the potential fire dangers in wood shingle roof construction and other construction features, coupled with defensible space and landscaping suggestions, made a significant impact on the outcome of this research project.

## **PROCEDURES**

### **Definition of Terms**

Wildland/Urban Interface. An interface zone is an area where development and wildland fuels meet at a well defined boundary. (NFPA, 1991)

Wildland/Urban Intermix. An intermix zone is an area where development and wildland fuels meet with no clearly defined boundary. (NFPA, 1991)

Structural/Wildland Interzone. Where structures meet or are mixed with vegetation, be it grass, brush, or trees, forming a ZONE that requires fire suppression operations combining both STRUCTURAL and WILDLAND tactics, strategies, and the proper equipment. (Dittmar, 1998)

Defensible Space. The area between a house and an oncoming wildfire where the vegetation or other combustibles have been modified to reduce the wildfire threat and which provides firefighters a better opportunity to defend the house. (The Sierra Front Wildfire Cooperators, 1992)

### **Research Methodology**

The goal of this applied research project was to develop a handout that would assist homeowners in wildland interzone areas in helping to minimize property losses due to wildfires. Toward that goal, historical research was conducted to understand the significance of the problem, types of construction material that may contribute to the problem, vegetation that may contribute to the problem, and what can a new or existing homeowner do to improve his chances of reducing the wildfire threat. Information was gained from municipal fire officials, government or forester fire officers, private landscaping companies and other public and private officials. The research was conducted during the early summer of 1998 from Garden City, ID.

In addition to the literature review, a personal interview was conducted for the purpose of understanding the relationship of the local wildland problems and history to national and regional events that could have meaningful comparisons. The interview also provided additional insight as to current and future problems along with possible solutions for the foothills area of the NACFR District.

The research was also action research as a homeowner guide was developed. The information gathered through historical research was applied to the actual components found in the homeowners guide.

### **Assumptions and Limitations**

An assumption can be made that homeowners want to protect their homes. Poor planning in terms of construction materials and or vegetation landscaping that place their residences in peril during a

wildfire can be attributable, not to apathy, but to the following; (1) lack of awareness of the potential wildfire problem and (2) lack of knowledge on how to take preventive measures (NFPA, n.d.).

There are several limitations that should be noted regarding the survivability of homes during a wildfire. Weather is a major factor, particularly high winds and/or low humidity. Winds or wind gusts of over 20 MPH result in a low survivability for threatened structures (Perry, 1990). Fire brands, carried by high winds can negate the best defensible space planning by the homeowner. Those high winds, coupled with high fuel loads in the interzone area can spell disaster. Case histories document that even structures which meet the defensibility criteria to a high degree cannot be successfully defended in severe fire conditions, especially when fireline intensities exceed 500 Btu/feet/second (Brown, 1994). Other limitation factors include adequate water supplies in the interzone area and adequate roads or access for suppression crews. While these limitation factors are out of the control of the homeowner, they should be mentioned here, as they do influence the survivability of the structures in the interzone areas. The homeowners guide developed through this applied research program will materially assist the homeowner during a wildland fire but will not guarantee complete protection when wind speed or other factors out of his control, are present.

## **RESULTS**

The handout developed by this applied research project to assist homeowners in minimizing property losses prior to experiencing a wildland/urban interface fire is shown in Appendix C.

### **Answers to Research Questions**

Research Question 1. *What external features of a residential building are the most hazardous and would contribute to its loss during a wildland fire?* Clearly, the wood shingle roof is the most dangerous aspect of building construction in the interzone areas. Many areas have local ordinances that prohibit this type of construction material, including the District of NACFR. The roof is the most vulnerable part of a home, providing areas in which wind blown sparks and burning embers may be trapped. In most interzone fires where residences were lost, the wood roof has been observed to be the first part of the home to ignite and burned the most fiercely. The most important step taken when building a new home or re-roofing an existing home in the interzone area, is using fire resistive or non-combustible roofing materials. Many products on the market now offer a safe and attractive alternative to the wood shingle roof. Tile and slate roofing materials are considered some of the safest available, while the composition shingle is still superior to the wood shingle.

Wood siding such as cedar or pine is also dangerous and should be avoided. Exterior siding such as stucco or brick, resist fire better than wood. Generally speaking, the thicker the siding material, the better. Log homes, although wood, are very thick and provide more fire resistance than cedar or other types of wood. (The Sierra Front Wildfire Cooperators, 1992).

Other construction features that contribute to losses to fire are wood decks facing a slope, large glass windows facing a slope, unprotected louvers and chimneys with a spark arrestor missing or never installed. Roof eaves that extend beyond the exterior walls are also susceptible to flames and should be boxed or enclosed with fire resistive materials. Also, openings such as attic or ridge vents, under floor vents, undersides of decks or balconies are also susceptible to sparks or embers and should be screened or enclosed. Homeowners frequently overlook the dangers of the accumulation of leaves or

other combustible materials on roofs or decks. Clearing those materials off of and away from the residence, at least annually, is recommended.

A further consideration in reducing the threat of wildfire is to stack firewood away from any structures, prevent the accumulation of rubbish near the structure, and to space all combustible items with adequate clearances. Some of those combustible items would include barbecues, propane tanks, incinerators or burn barrels (Teie, 1994).

Research Question 2. *What types of plants or shrubbery are the most hazardous and would contribute to the spread of fire during a wildland conflagration?* All vegetation, both natural native varieties and introduced species, are a potential fuel to feed a wildland fire. The type, amount and arrangement of vegetation available for burning around or near a residence, can have a dramatic effect on fire behavior. If vegetation is properly modified, a wildland fire can be slowed down, the length of flames shortened, and the amount of heat reduced, all of which contribute to the survivability of a house during a wildfire (The Sierra Front Wildfire Cooperators, 1992). There are three basic modification steps that can be taken to establish a “defensible space”, with a possible fourth being a combination of two or more of the first three. These steps are:

1. Removal: This technique involves the elimination of entire plants, particularly trees and shrubs from around the site. Examples of removal would be cutting down trees and or the removal of all shrubs from a certain radius around the residence.

2. Reduction: The removal of plant parts, such as branches or leaves, that would constitute the thinning of the fuels in place. Examples of reduction modification are pruning wood from a shrub, cutting low branches from a tree, and mowing tall grasses from around the home. Another example is to create islands of vegetation that would break up the continuity of fuels.



3. Replacement: Replacement is the substitution of less flammable plants in place of more hazardous vegetation. For example, removal of dense flammable shrubs and the planting of an irrigated, well maintained flower bed would be a type of replacement modification.

As stated, most types of natural or native vegetation are hazardous, particularly in the dry summer months. Cheat grass is a good example of natural vegetation that burns quickly when dry in the summer. Limbs or branches that are close to the ground can be ignited easily by burning grasses and low growing plants. Most authorities suggest pruning trees and shrubs up to at least five or six feet from ground level.

Most homeowners want to have attractive landscaping around their property. The replacement method works well to add to defensible space and maintain attractive landscaping. The characteristics of flame resistive vegetation are:

- Growth with little or no accumulation of dead vegetation
- Non-resinous plants
- Plants with woody stems and branches that require prolonged heating to ignite
- Drought-tolerant plants (deeply rooted with thick heavy leaves)
- Plants with high live fuel moisture (plants that contain a large amount of water in comparison to their dry weight)

Various types of vegetation that may be considered as attractive landscaping and that qualify as being fire resistive are detailed in Appendix B. (Far West Landscaping, Boise, ID.)

Research Question 3. *What local or regional ordinances are on the books that govern building construction in the foothills area?* The foothills area in question lies within the boundaries of Ada County, Idaho, and does have a local (County) ordinance that governs building construction in

those areas. An amendment recently passed by the Ada County Commissioners addresses special restrictions for new construction in a wildland/urban interface overlay district. This new ordinance creates a special overlay district that covers all of the foothill areas in Ada County. The purpose and scope of the ordinance was to provide mitigation standards and procedures for all new construction in the interface areas and to reduce the threat of the loss of life and property in the overlay district from wildfire hazards.

Specifics contained in the Ordinance deal with exterior building construction and defensible space similar in content to the discussions in the previous two research questions. In addition to those areas, access, water supply, identifiable addressing and other areas have been standardized. This new ordinance was initiated by the Ada County Fire Chiefs' Association and while late in coming, presents a positive step forward in dealing with interzone fire problems. Another amendment projected to be passed in 1999 may further tighten restrictions and provide additional protection to new homeowners. It should be noted that existing structures have been "grandfathered" in this ordinance and will continue to present challenges to firefighters in our District (Ada County Ordinance, No. 319).

Research Question 4. *What recommendations can be made on pamphlet form, that would assist homeowners in protecting their residences during a wildland fire?* In considering the use of a simple pamphlet to be handed out to foothills homeowners, brevity seemed important. A one page handout was selected that could provide home and property protection information on an easy to read format. The recommendations for homeowners were divided into two categories; the home itself, and the yard.

The external construction features of the home that would add to fire safety included roof construction, exterior wall construction, decks and vulnerable openings. A brief description on the most fire safe

features of these home construction components could be made. On the yard side, defensible space was the target. In creating defensible space, the three “R’s” were deemed the most important consideration to reducing wildfire loss potential. Removal, reduction and replacement could be discussed in the limited space available. While only a one page handout, the guide could provide the homeowner with significant information to reduce wildfire loss potential.

### **Additional Information Obtained**

The research material reviewed pointed out other considerations that would assist a property in likely surviving a wildfire. These considerations, if applied, would assist suppression efforts rather than property improvements that would reduce fire hazards unassisted. Access was a large consideration, with ample street and driveway widths to accommodate responding fire apparatus. Street names and numbers should be clearly visible from the street, day or night, at a distance of 150 feet minimum. Other recommendations include streets wide enough to accommodate two way traffic, two separate exits from a subdivision and wide turnaround areas for cul-de-sacs. Driveways should be constructed with a loop or u-shaped design, enabling fire apparatus to turn around.

Water is another important factor that should be considered. If the home is located in a subdivision that has hydrants, it’s important that they are clearly visible. Most homes in the interzone areas do not enjoy the safety of fire hydrants and water supply for the suppression teams presents additional challenges. If there are other water sources, such as lakes, ponds, swimming pools or creeks, they should be clearly marked with signs and access should be provided to within 16 feet of the water supply. A dry hydrant system could be designed and built with the assistance of the local fire department (The Sierra Front Wildfire Cooperators, 1992).

## DISCUSSION

The topography, climate, vegetation and typical home construction found in the foothills of NACFR's fire district are similar in character to those found throughout the Intermountain West. It is this wildfire interzone that has historically been the venue for both large and small scale wildfire disasters. While our district has been fortunate in not having lost any homes to wildfire to date, the growing interzone population in our backyard tells us this could become a reality, and perhaps soon. If our mission is to protect life and property, we must do so on a proactive basis. If we rely only on suppression efforts, which may be influenced by conditions out of our control, we risk losing homes that may otherwise have been saved. While this prevention concept is not new to our district in terms of fire prevention programs for our businesses, we have yet to do much for the homeowners in the wildfire interzone areas.

The results of this study and the correlating end product, the Homeowners Guide, "Protecting Your Home From Wildfire", are a very close match in terms of recommendations and findings. Rarely in the fire service do so many experts agree on a specific subject. The literary review revealed a surprisingly standard set of recommendations, both for building construction and for defensible space landscaping modifications, that have been incorporated into the Homeowners Guide. For example, every reference studied, recommended the elimination of combustible vegetation to a minimum of 30 feet away from the home. Interesting! Other areas of concern such as roofing and siding materials to avoid were fairly standardized in the recommendations made by the experts. When the homeowner heeds the advise of the experts, the chances of losses are reduced as dramatically illustrated several years ago during the Laguna Hills, CA, Fire. (Appendix D)

The implications of these findings for our organization seems clear. The threat of property losses from wildland fires are real and the potential for reducing property losses is proportionate to the efforts made in fire prevention in these areas. Another implication for our District is the reduced potential for our firefighters being hurt or killed in trying to defend an indefensible home during a wildfire conflagration. Simply, if a home does not catch fire, we do not need to try to extinguish the fire, and can concentrate suppression efforts on controlling the wildfire.

The creation and distribution of the Homeowners Guide provides our organization with an intangible but important benefit, a new level of public relations. It is widely recognized these days, that local fire departments must become more customer service oriented. Just responding to fires or medical calls alone does not provide the best bang for the buck for our taxpayers. As a service industry, we must do all we can to expand our services to the public. Being more visible as well as providing a fire prevention handout is a positive step in expanding our services to the public and making them aware of our role in the community. The formation of a fire prevention partnership between NACFR and the homeowners of our foothills community would be an extremely positive step in increasing our public service delivery.

## **RECOMMENDATIONS**

It is recommended that North Ada County Fire & Rescue adopt a new policy of distributing to the foothills homeowners, the Homeowners Guide “Protecting Your Home From Wildfire”. This addition to our fire prevention program should be adopted under the following guidelines:

- The Homeowners Guide should be distributed to all existing residences in the foothills area of our fire district, on an annual basis during the month of June, which would provide the homeowner with time to make modifications prior to the wildfire season beginning in July.
- The distribution should be made on a house to house basis by on or off duty firefighters. The day of the week preference would be on Saturday or Sunday when the likelihood of the homeowner being home is the greatest. (In comparison to just leaving the Guide on a doorstep during the week) Firefighters would be encouraged to visit with the people they come in contact with, including children, and generally discuss the contents of the Guide and other fire safety issues that may be appropriate.
- Although new home construction in the foothills area will be governed by the newly adopted County Ordinance, the Guide should still be made available to those people, to insure that improvements to their homes meet defensible space requirements. It could also be a forum to discuss wildfire dangers and other fire safe practices with the new homeowner.

## REFERENCE LIST

- Ada County Ordinance, No. 319, Chapter 8, New Article D. (February, 1997)
- Birr, T. (1990, December). High desert firestorm threatens resorts and developments in Bend  
*Firehouse*, pp. 40-43.
- Birr, T. (1992, January). Fire Nightmare in Spokane. *Firehouse*, p. 60
- Brown, K. (1994, February). Structure Triage During Wildland/Urban Interface/Intermix Fires.  
(Executive Fire Officer Research Paper). Emmitsburg, MD: National Fire Academy.
- Colorado State Forest Service,(n.d.). Wildfire Protection in the Wildland Urban Interface.  
( CSFS # 143-691) pp. 6-8
- Cowardin, D.H. (1992, September). Wildland/Urban/Rural Structure Triage. *American Fire  
Journal*, pp. 28-29
- Cullom, K.D. (1990, September). On the Job, California. *Firehouse*, pp. 34-42
- Dittmar, J.M. (1998, May). The Wildland Interface: Impact on Local Fire Departments. *Fire  
Engineering*, pp. 65-70, 72-83
- Far West Landscaping. (1998, June). Fire Resistive Plant Brochure, Boise, ID
- Hoffman, J.W. (1991, January). Shake Shingle Roofs. *Firehouse* pp.56-57
- International Association of Fire Chiefs and Western Fire Chiefs Association. (1991).  
Development Strategies in the Wildland/Urban Interface, pp. 118-119
- Michaels, M. (1991, December). Oakland Hills Firestorm, *Firehouse*, pp. 34-40
- National Fire Protection Association.(NFPA) (1991). *NFPA 299 Protection of Life and Property  
from Wildfire* (1991 ed.). Quincy, MA

NFPA.(n.d.) *Protecting Your Home from Wildfire*. Quincy, MA. pp. 6, 10-18

North Ada County Fire & Rescue. (1998, June). Run Statistic Report, Garden City, ID

Perry, D.C. (1990). *Wildland Firefighting: Fire Behavior, Tactics & Command* (2nd. ed.).

Bellflower, CA.

Queen, P.R.. (1991, December). Conflagration in Oakland! *American Fire Journal*, pp 12-15

Queen, P.R. (1992, August). Fighting Fires in the Urban/Wildland Interface. *American Fire Journal*, pp. 34-39

The Sierra Front Wildfire Cooperators. (1992). *Wildfire Protection for Homeowners &*

Developers: A Guide to Building and Living Fire Safe in the Wildlands. Carson City,

NV.

Teie, W.C. (1994). *Firefighters Handbook on Wildland Firefighting: Strategy, Tactics and*

Safety. Rescue, CA.

Wrightson, S.G. (1994, January). Clark County Rates Interface Homes. *American Fire Journal*, pp. 20-22



## APPENDIX A

A

<b>FUEL CLASSES</b>	<b>DESCRIPTION</b>	<b>EXPECTED FIRE BEHAVIOR</b>	<b>ACTION REQUIRED</b>
<b>Brush</b> thinned; patches of brush space; cut	Continuous dense fuels, 1.5 to 10 feet high; fire control is difficult due to tough, numerous stems which resist cutting; strong root systems make brush difficult to clear or grub out.	Medium to high intensity; may throw sparks ahead of fire causing several small ones; fire spread is moderate to extreme; excellent ladder fuel.	These areas are difficult to modify, but can be only small allowed in defensible no brush should be left within 10' off structure;
			during growing season to limit sprouting; (sprouts may require chemical treatment)
<b>Trees----</b> instructions for <b>Low</b> (below) prune <b>Density</b>	Open conifer stand with less than 35 % crown cover; areas may contain grass, weeds, brush under 2' tall, aspen, cottonwoods or willow.	Low intensity fire; may spread rapidly, but not easy to extinguish.	If ladder fuels are present, follow ladder fuels limbs up to 10'; above ground level; eliminate debris from area.
<b>Trees----</b> so that <b>Medium</b> touch; <b>Density</b>  defensible	Crown cover of 35-55% of the ground area; tree crowns usually are not touching; herbage & liter are present with patches of small trees and deadwood.	Moderate intensity; flare-ups occurring to many feet above tree tops; sparks may be thrown ahead of main fire; fire spread is variable & may produce considerable heat.	Remove ladder fuels; thin clumps of trees crowns do not occasional clumps may be retained dependent upon location within space; maintain a mixture of species if possible.
fuels; thin	Dense conifer stands of more than	High intensity; frequent flare	Remove ladder

<b>Trees----</b> so <b>High</b> <b>Density</b> high density	55% crown cover, brush understory, up higher than tree tops; or ladder fuels; crowns are usually touching.	“crown” fires possible; sparks may be thrown far ahead; these very hot fires can spread rapidly & are difficult to control; if fire is in crown, actual control may be impossible.	trees in defensible space no crowns touch; if home is surrounded by tree stands, no clumps are recommended within defensible space; maintain a mixture of species if possible.
---	---	---	--

## APPENDIX B

B



5728 West State Street • Boise, Idaho 83603

We recommend the following types of fire resistive plant material for landscaping use in the Ada County Foothills areas. **The list is not all inclusive**. However, it would give the homeowner ample samples of fire resistive vegetation.

### GROUND COVERS

Bugleweed (*Ajuga reptans*)  
Daylily (*Hererocallis*)  
Horsta  
Iris  
Mountain Laurel (*Dalmia latifolia*)  
Periwinkle (*Vinca minor*)  
Rhododendron  
Wooly Yarrow (*Achillea tormentosa*)

### VINES

Trumpet Vine (*Campsis radicans*)  
Virginia Creeper  
(*Parthenocissus quinquefolia*)  
Grapes (*Vitis spp.*)  
Wisteria (*Wisteria spp.*)

### SHRUBS

Bearberry (*Arctostrophylos uva-ursi*)  
Bulbous Bluegrass (*Poa bulbosa*)  
Currant (*Ribs spp.*)  
Holly (*Ilex spp.*)  
Rock Rose (*Cistus spp.*)  
Serviceberry (*Amelanchier spp.*)  
Snowberry (*Symphoricarpos spp.*)  
Sumac (*Rhus spp.*)

### TREES

Black Locust (*Robinia Pseudoacacia*)  
Hackberry (*Celtis occidentalis*)  
Honey Locust (*Gleditsai triacanthos*)  
Oak (*Quercus spp.*)  
Quaking Aspen (*Populus tremula tremuloides*)  
Sweetgum (*Liquidambar stryaiflua*)  
Walnut (*Juglans spp.*)

## APPENDIX C

### NORTH ADA COUNTY FIRE & RESCUE DISTRICT

#### **Homeowners Guide** **“Protecting Your Home from Wildfire”**

As a homeowner living or considering building in areas where wildfires can occur, you can protect your home and preserve the environment by taking a few important precautions.

##### **REGARDING YOUR HOME .....**

- The roof and exterior structure of your dwelling should be made of non-combustible or fire resistive materials such as asphalt shingles, tile, slate, or metals
- Wood shakes, cedar shakes or other highly combustible materials should be treated with fire retardant chemicals.
- Clean the roof surfaces and gutters cleaned regularly to avoid the accumulation of leaves, twigs, pine needles and other flammable materials.
- Wood decks or wood balconies should be treated with fire retardant chemicals and the undersides boxed off or screened to eliminate sparks or embers from igniting.
- Be sure your chimney has a working spark arrestor.

##### **REGARDING YOUR YARD .....**

- All the highly combustible vegetation should be cleared a minimum of 30' from the residence, more if your are close to a slope.
- Thin out trees or bushes, if appropriate, and prune any limbs up to up to 6' from the ground?
- Mow or remove all tall grasses from around structures.
- Consider replacing natural vegetation with fire resistant landscaping. Consult any of the local landscaping companies for specifics.
- Remove all flammable items that may be near structures, such as stacked firewood, rubbish, propane tanks, or even wooden outbuildings.

**Remember, while wildfires will occur,**

**You have the ability to reduce the threat to your home and minimize the potential of life and property loss.**

If you have any questions regarding the above recommendations or if you would like to discuss fire safety in general, please call us at 375-0906.

## APPENDIX D

Laguna Hills, CA November, 1994



A dramatic illustration of a “miracle home” that survived with the help of fire resistant construction and landscaping. Hundreds of others next door didn’t !